

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of Part 90 of the	)	WT Docket No. 01-146
Commission's Rules and Policies for	)	RM-9966
Applications and Licensing of Low Power	)	
Operations in the Private Land Mobile	)	
Radio 450-470 MHz Band	)	

**Reply Comments of Pacific Crest Corporation**

Pacific Crest Corporation, a leading manufacturer of radio communication equipment used with Real-Time-Kinematic ("RTK") technology, by its counsel, hereby submits these reply comments to the Notice of Proposed Rulemaking in the above-captioned proceeding which proposes new regulations to recognize the diversity of low power operations in the 450-470 MHz band.

RTK technology is a method of improving the accuracy of Global Positioning Systems ("GPS") in order to achieve an accurate, reliable and cost effective substitute for previous surveying, positioning and machine control technologies. As Pacific Crest explained in its Comments, on a typical surveying project, a mobile base station receives GPS data, performs RTK corrections and transmits the correction data to mobile GPS units (rovers). This provides the location of each mobile unit to be determined with pin-point accuracy. The base station and rovers can easily be moved from site to site. RTK provides real-time analysis. Therefore, while a data transmission does not have to be continuous, it must last for the duration of the particular surveying or positioning activity. At present, RTK transmissions take place on a secondary basis on voice channels and, as the Commission recognizes, this is not a good fit.

The Commission's Group C proposal to allocate 25 frequencies for nationwide, uncoordinated, itinerant use provides a potential to alleviate the spectrum shortage for RTK use and, at the same time, solve the perceived problems associated with sharing with voice channels. In its comments, Pacific Crest has asked the Commission to designate a small number of the frequencies proposed for Group C for data transmission on a primary or co-primary basis.

As Pacific Crest and others in this proceeding have pointed out, even in the four years since the LMCC plan was offered to the Commission, the need for wireless data transmissions has grown significantly.<sup>1</sup> Indeed, it is clear that the very distinction between voice and data is becoming increasingly blurred.<sup>2</sup> Moreover, as new applications for wireless data have proliferated, administrative labels such as “fixed data” and “telemetry” have lost much of their utility.<sup>3</sup> If then, the Commission seeks to attempt a dispositive allocation of spectrum for low power use, it must recognize the new environment and adopt regulations that are sufficiently flexible to accommodate it.

### Spectrum Sharing

The Commission has expressed its concern that it is difficult for itinerant data applications to share spectrum even on a secondary basis. In fact, however, there are many data applications, including some applications of RTK technology, that are perfectly able to share spectrum, even on a secondary basis. Certainly, for instance, systems designed to transmit in intermittent or occasional millisecond bursts, that use carrier detection technology to seek out quiet spectrum, and that have automatic provisions to cease transmitting make better spectrum neighbors than some analog voice operations that may transmit over minutes at a time. Data transmissions that share these characteristics should reasonably be able to operate on a secondary basis on all the Group C frequencies. There is every benefit to be achieved from permitting such operation and no useful public purpose to be served from not doing so.

### Primary Allocation for Data Transmission

The successful application of RTK technology for some surveying activities or for precision guidance of drilling equipment requires more than an occasional millisecond transmission. Even though Pacific Crest’s equipment may operate on a 30 to 70 percent duty cycle, to obtain desired accuracy on a continuous basis, it is often necessary for such transmissions to occur over many minutes. Under these circumstances, Pacific Crest agrees with the Commission that secondary operation can be a problem. For this reason, Pacific Crest has proposed that a small number of Group C frequencies (perhaps six or seven) be designated on a primary or co-primary basis for data transmissions.

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<sup>1</sup> See Comments of Dataradio COR, LTD, Motorola, Enalasys Corporation, and Trimble Navigation Limited. As stated in its Comments the number of RTK systems is expected to grow by 135%.

<sup>2</sup> See Comments of Motorola

<sup>3</sup> See Comments of Motorola. It is not clear whether itinerant spectrum use fits neatly within the meaning of “fixed” or “mobile.” It is certainly not clear why such a distinction should matter. The Commission points out that Note 62 authorizes fixed operations on a secondary basis to land mobile operations, but surely Note 62 should not limit the Commission’s enabling of itinerant services because by some lights they might be deemed “fixed.”

A data primary designation would go a long way to relieving the present shortage of usable spectrum for certain RTK systems and would, moreover, recognize the growing uses for this type of itinerant data technology nationwide. In this regard, Pacific Crest agrees with Trimble Navigation that fixed operations in the Group B frequencies be limited to data transmissions. RTK applications or any other data application requiring longer transmissions will not be compatible with voice communications.<sup>4</sup>

### Miscellaneous Matters

Pacific Crest agrees with those who have opposed delay of non-coordinated use of the ten Group C frequencies used in hospitals for medical radio telemetry until October 2003, the deadline for medical telemetry systems to vacate the spectrum. There has been no showing that continued low power operations on this spectrum, even on an itinerant basis, is likely to have any additional impact on wireless medical telemetry operations. Moreover, there are now suggestions that hospitals have been unable to quickly vacate the 460-470 MHz band.<sup>5</sup> Indeed, one party has already taken advantage of this rulemaking proceeding to request an extension of the October 2003 deadline.<sup>6</sup> It would surely come as no surprise should this informal request for extension soon be followed by other, more formal requests. While Pacific Crest does not oppose granting hospitals whatever reasonable time is necessary for the transition to the new WMTS bands, we strongly believe that the Commission's ongoing efforts to promote more efficient use of the private land mobile spectrum cannot continue to be held hostage to what may well be a transition period of undetermined length.

Pacific Crest also questions the need to exclude from the Group C pool the four frequencies used for dockside operations.<sup>7</sup> While it is not clear how to deal with the possibility of itinerant operations in proximity to dockside operations, it is surely the case that in most of the country, the protection of dockside operations is not a concern. It would seem inefficient to exclude the dockside frequencies from itinerant use merely to protect dockside operations in just a few places. The demand for spectrum is simply too great to write off four frequencies lightly. It is incumbent upon the Commission to devise a plan that would protect the dockside frequencies while still making the spectrum available on a nationwide basis.

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<sup>4</sup> Where the Commission does intend the use of spectrum for data applications Pacific Crest also agrees with Trimble that licensing should be permitted on an individual rather than a channel pair basis. Many data applications are not dependent on duplex operation. Licensing on a per channel basis would enable more efficient use of the spectrum.

<sup>5</sup> See Comments of Phillips Medical Systems

<sup>6</sup> See Comments of Alina Health Systems

<sup>7</sup> See Comments of Motorola

## Conclusion

Pacific Crest applauds the Commission's efforts to serve the low power community and make more efficient use of the 450-470 MHz band. It asks only that the Commission recognize the growing need for itinerant data operations and that in many cases data transmissions are limited and pose little threat of interference to voice communications. For operations that require longer data transmissions, Pacific Crest asks the Commission to designate some few of the Group C frequencies for data transmissions on a primary or co-primary basis. This would seem a reasonable compromise between the need to protect primary voice communications on most of the Group C frequencies and the obligation to provide for the needs of new communications systems that are dependant upon the transmission of data.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Terry G. Mahn', with a long horizontal flourish extending to the right.

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